showing some stage of embryonal development in the spring terrestrial Monotreme. As to the hairy and aquatic *Ornithorhynchus*, the impregnated females in which ova were found in the uterus, of small size, and prior to the formation of the embryo, were caught on the 6th and 7th of October. Young *Ornithorhynchi*, measuring in length in a straight line 1 inch and $\frac{7}{8}$ths, were found in the nest on the 8th of December. The period of impregnation, therefore, in this species, in the locality of the Murrumbidgee River, is probably the latter end of September or beginning of October. Females captured in the latter half of October and in the month of November, would be most likely to have ova *in utero*, exhibiting stages of embryonal development.

The author concludes by quoting a letter informing him that an Ornithorhynchus in captivity had laid two eggs, with a soft unvascular covering, each about the size of a Crow's egg. They were destroyed without examination. Had they been preserved in spirits or opened on the spot, the inference of the ovo-viviparous character of the animal might have been confirmed or otherwise. According to the Report, these alleged eggs must have resembled those of the Viper. Now the young Viper is provided with a specially and temporarily developed premaxillary tooth, for lacerating the soft, but tough, shell of its egg, and so liberating itself. From this analogy, the author conceives that the young Monotremes may be provided with a horny or epidermal process or spine upon the internarial tubercle for the same purpose. This temporary tubercle is obviously homologous with the hard knob on the upper mandible of chelonians and birds, by which they break their way through the harder calcareous covering of their externally hatched embryo.

The paper was illustrated by drawings of the female *Echidna*, of her marsupial pouches and young, of the mammary glands, and of the female organs of generation.

March 9, 1865.

Major-General SABINE, President, in the Chair.

The following communications were read :—

I. "Numerical Elements of Indian Meteorology.—Series II. Insolation, and its Connexion with Atmospheric Moisture." By Hermann von Schlagintweit. Communicated by the President. Received December 27, 1864.

(Abstract.)

The author regards as an approximate measure of insolation the difference of the maximum temperatures observed by two similar thermometers,

one in the sun, and the other in the shade, disturbing influences being as much as possible avoided in both cases, and the observations being confined to those days on which the sun shone sufficiently clearly to cast a distinct shadow during some part of the interval between noon and 4 P.M. Comparing the differences of insolation in different parts of India and in different seasons, he is led to regard insolation as dependent greatly on relative humidity. Thus, generally speaking, it is greater on the seaboard than in the interior of India. At individual stations, the maxima of insolation occur on days of great relative moisture, *i. e.* on days in the rainy season when the clouds are temporarily broken, or in the months immediately following the rainy season, when the atmosphere is still very humid. Calcutta and Columbo are taken as types of a sea-climate, Konagheri and Bellori as types of an interior or very dry climate. In the one type the relative humidity is from 88 to 93, the insolation 50°; whilst in the other type the relative humidity is from 60 to 65, and the insolation from 8° to 11°. Still more striking results are obtained by comparing the mountain climates of Sikkim and Ladak, nearly at similar absolute altitudes. At Ladak the relative humidity is about 30, and the insolation about 18°; whilst in Sikkim the relative humidity is estimated at from 81 to 84, and the insolation from 60° to 75°. The contrasts in these comparisons are very great, and, with other examples, which are cited, appear to substantiate a connexion between the presence of aqueous vapour in its transparent state, and insolation as measured by the differences of thermometers in the sun and shade. The connexion is shown to be in perfect harmony with the results obtained by Professor Tyndall, and is explained by considering simultaneously the gain of heat which the thermometer experiences by direct radiation from the sun, and its loss of heat by radiation to the surrounding air. The opacity of the air for the invisible heat radiating from the thermometer rapidly increases with the amount of vapour of water which the air contains, while its transparency for the heat directly radiated from the sun is *comparatively* little affected. Thus when the air is highly charged with moisture, free radiation from the thermometer is much impeded; or rather, what the thermometer loses by radiation into the air is in some measure restored by radiation back again from the air.

II. "On the Structure and Development of the Skull of the Ostrich Tribe." By WILLIAM KITCHEN PARKER, Esq. Communicated by Prof. T. H. HUXLEY. Received February 23, 1865.

(Abstract.)

The earliest condition of the struthious skull described by the author is that of a "pullus" of the African species, at about the end of the first third of the period of incubation. There are two individuals in this stage